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spectrum have been examined, with those produced by the condensed spark. The varying dissymmetries of certain titanium arc lines and the symmetry of the enhanced lines were features noted in the "tube-arc" spectrum. The violently disruptive action of the spark discharge thus does not appear to be essential to the phenomenon.

The evidence at hand points to a real displacing action, highly selective in character, being exerted by the conditions in the interior of the spark. A fairly definite program may be offered for the study of this effect and its application to any spectrum in which the strength of enhanced lines indicate that displacements due to this cause may have a magnitude worth considering. The relative intensity of enhanced and arc lines in the spark spectrum may be controlled within a wide range by adjusting the circuit conditions. The function of the micro-photometer will be two-fold: first, to measure the relative strength of the enhanced and arc lines for a given condition by means of the areas of their intensity curves, lines of these two classes being often very different in appearance; and, second, to show for a given line in the spark spectrum where its maximum is located with reference to the position of the corresponding line in the arc, the latter being obtained either from an adjacent arc spectrum, or, in the case of reversed spark lines, from the position of the reversal. The tests already carried out with the micro-photometer brought from Munich by Professor KOCH have shown these measurements to be well within the capabilities of the instrument. A large apparatus of the same type is now under construction here for the work on the large-scale spectrograms. ARTHUR S. KING.

MOUNT WILSON SOLAR OBSERVATORY,
May 14, 1914.

## BLINKSTERNE.

For several years Dr. HARTWIG, in the annual *Katalog und Ephemeriden veränderlicher Sterne*, has used the term "antalgol" to designate a small group of variable stars whose light curves are similar to those of the *Algol* variables when rotated thru 180° about the horizontal line, or turned upside down. Dr. HARTWIG has now given up the use of this term and in the catalog and ephemeris for 1914 proposes a new term, "Blinksterne," to be applied to both the antalgol and the *δ Cephei* types of stars. The antalgol stars were formerly put by themselves in Part IV of the catalog, but this has been changed and they are put in Part II, which now includes all short-period variables except those of the *Algol* and *β Lyræ* types.

It seems rather doubtful if a satisfactory translation of the word Blinkstern into English can be obtained. Neither blink-star nor flash-star seems acceptable. Nearly all are agreed, I think, that there is no real difference between *δ Cephei* and antalgol variables, and that they should be put together into one class. The problem is to find a suitable name. If the name suggested is acceptable, it may be best not to attempt a translation into other languages. Dr. HARTWIG's remarks on this matter are worth quoting in full and I give below a rather free translation, too free to warrant the use of quotation marks.[1]

As for the inclusion of the antalgol stars [in Part II], it appears evident, from more careful investigations of their light changes, that, in the case of most of them, though not all, there is, in reality, no long period of constant light interrupted by a brightening, in contrast to *Algol* stars whose period of constant light is interrupted by an absolutely regularly recurring eclipse; but that, on the contrary, their variability is continuous, and after a gradual declining to a definite minimum there occurs, with extraordinary regularity, a rapid brightening to a maximum of short duration.

The behavior of these stars suggests the appearance of the flash-light in a light-house on the seacoast, which after exactly equal intervals blazes out, and after a short duration, slowly disappears; and I suggest for these stars, which have their oldest representative in *δ Cephei*, the name "Blinksterne." The necessity for a name is in the highest degree weighty and pressing. It is necessary to distinguish these stars from other variables by a characteristic name, and it is to be hoped that the false and misleading term, Cepheids, will soon be given up. Cepheids are meteors which come from the constellation *Cepheus*, as the Perseids are meteors which have their radiant point in the constellation of *Perseus*. If one should call the Algol stars Perseids, after the oldest representative, $\beta$ *Persei*, then everyone would immediately recognize the incorrectness of the designation. The name Cepheid is, in quite the same way, incorrect and misleading. The name Cluster Star, taken up in America, is also not suitable, because this kind of a variation is not a general property of the stars in clusters, and not even of all the variables in clusters, and not all the stars having this kind of variation are located in clusters. For the present it is not possible to establish with certainty a class distinction expressed in length of period, even tho there seem to be short-period groups and long-period groups. Therefore these stars, with their great regularity, their sudden, rapid rise to maximum and their slow decrease, can be placed together under the common name of "Blinksterne." If the stars U *Geminorum*, SS *Cygni* and SS *Aurigæ* were regular in the times of their brightening, then they would be true examples of antalgol stars, because their increase of light comes after long periods of constant light.

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[1] *Vierteljahrsschrift der Astronomischen Gesellschaft*, **48**, 287.

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## SOME ELECTRIC FURNACE EXPERIMENTS ON THE EMISSION OF ENHANCED LINES IN HYDROGEN ATMOSPHERE.[1]

A very interesting paper with the above title by ARTHUR S. KING is soon to appear in the *Contributions from the Mount Wilson Solar Observatory*. Dr. KING has kindly furnished a manuscript copy to be abstracted for this issue of the *Publications*.

The experiments discussed in this paper were undertaken to test the hypothesis that the presence of hydrogen may facilitate the emission by metallic vapors of the so-called enhanced lines. This hypothesis was first suggested by the fact that the arc in a hydrogen atmosphere shows the enhanced lines stronger than in air. It is also known, however, that, for the same distance between terminals, the arc is maintained with greater difficulty in an atmosphere of hydrogen than in air and that the discharge is characterized by a higher potential gradient, indicating an approach to the conditions of the spark discharge.

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[1] Abstract by E. S. HAYNES.